REMARKS

Claims 2-6, 8 and 10-12 are pending in this application. Claim 8 has been rewritten in independent form to incorporate the limitations of claims 1 and 9, and claim 8 has been further amended. Claims 2-6 and 10-12 have been amended. Claims 1 and 9 have been cancelled. Applicants reserve the right to pursue the original claims and other claims in this application and in other applications.

Claims 2-6, 8 and 10-12 stand rejected under 35 U.S.C. § 112, first paragraph. In particular, the Office Action asserts that "[N]either the specification nor any evidence of record indicates that there is absolutely no diffusion through the dielectric layer." (Office Action at 2). Applicants note that this rejection is moot in view of the above claim amendments.

Claims 2-6, 8 and 10-12 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In particular, the Office Action asserts that claim 1 recites the limitation "an underlying layer" with "insufficient antecedent basis," and that claims 1-12 are "incomplete for omitting essential steps." (Office Action at 3). Applicants note that claim 8 has been rewritten in independent form and recites the step of "depositing an oxygen-deficient dielectric film . . . over an underlying layer." Applicants respectfully submit that all pending claims are in full compliance with 35 U.S.C. § 112.

Claim 8 stands rejected under 35 U.S.C. § 102 as being anticipated by Emesh et al. (U.S. Patent No. 5,728,603) ("Emesh"). The rejection is respectfully traversed. Emesh does not teach or suggest subjecting an oxygen-deficient dielectric film to "a wet oxidation in a rapid thermal process chamber at a temperature of at least about 450 °C and for a duration which increases the oxygen content of the dielectric film" and "subjecting the dielectric film to a heat treatment in an ambient comprising a stabilizing gas selected from the group consisting of N_2, O_2, O_3, NO, and N_2O," as amended independent claim 8 recites. Emesh teaches forming a crystalline perovskite phase for ferroelectric dielectric

materials "comprising lead zirconate titanate" or PZT (Abstract). For this, Emesh teaches"depositing a layer of amorphous ferroelectric precursor material" and then annealing the layer "to cause a phase transformation to a ferroelectric crystalline perovskite phase." (Col. 3, lines 21-30). Emesh is silent, however, about "subjecting the dielectric film to a heat treatment in an ambient comprising a stabilizing gas selected from the group consisting of N_2, O_2, O_3, NO, and N_2O," as amended independent claim 8 recites. Accordingly, Emesh does not disclose the limitations of claim 8, and claim 8 should be considered allowable.

Applicants note that all other claim rejections under 35 U.S.C. §§ 102, 103 are moot. Claims 2-6 and 10-12 now depend on claim 8, and should be allowable along with claim 8 and for other reasons.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

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Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

2. (amended) The method of claim [1] 8 wherein the wet oxidation process is performed at a temperature in a range of about 450 °C to about 750 °C.

3. (amended) The method of claim [1] 8 wherein the wet oxidation process is performed at a temperature in a range of about 750 °C to 950 °C.

4. (amended) The method of claim [1] 8 wherein the oxidation process is carried out for a duration in a range of about 20 to about 60 seconds.

5. (amended) The method of claim [1] 8 wherein subjecting the dielectric film to a wet oxidation includes heating a mixture of hydrogen and oxygen gases wherein the ratio of [steam to other] hydrogen to oxygen gases in the [chamber] mixture is in the range of about 0.1 to about 0.5.

6. (amended) The method of claim [1] 8 wherein subjecting the dielectric film to a wet oxidation includes heating a mixture of hydrogen and oxygen gases wherein the ratio of hydrogen [gas] to oxygen [gas] gases in the [chamber] mixture is in the range of about 0.1 to about 0.8.

8. (amended) [The method of claim 1 wherein depositing a dielectric film includes depositing a material] A method of fabricating a semiconductor device comprising:

depositing an oxygen-deficient dielectric film having a dielectric constant of at least about 25 over an underlying layer;

subjecting the dielectric film to a wet oxidation in a rapid thermal process chamber at a temperature of at least about 450 °C and for a duration which increases the oxygen content of the dielectric film; and

subjecting the dielectric film to a heat treatment in an ambient comprising a stabilizing gas selected from the group consisting of N_2, O_2, O_3, NO, and N_2O.

10. (amended) The method of claim [9] 8 wherein subjecting the dielectric film to a heat treatment in an ambient comprising a stabilizing gas is performed prior to subjecting the film to the wet oxidation.

11. (amended) The method of claim [9] 8 wherein the wet oxidation is performed at a temperature less than the temperature for subjecting the dielectric film to a heat treatment in an ambient comprising a stabilizing gas.

12. (amended) The method of claim [9] 8 wherein subjecting the dielectric film to a heat treatment in an ambient comprising a stabilizing gas is performed in the rapid thermal process chamber.